Plenary Session Day 1

Activity	*System Condition 1*		*System Condition 2*		*System Condition 3*	
	+	-	+	-	+	-
1. Paper	Paper packaging material	-Heavy equipment-harvesting and paper processing	-Inks, soy based	-Air issues-particulate matter	-Salvage, re-pulping	-Water consumption, processing, septage
		-Land filling	-Dissolved Oxygen bleaching	-Dyes for coloring paper	-Recyclable/	-Storm water run-off
		-Materials for building construction		-Paper slurry (waste)	Compost-able	-Road building-harvesting, transportation to plant
		-Inks--petroleum based		-Chemicals for pulping process	-Renewable resource	-Site erosion from harvesting
		-Harvesting		-Paper production-bleaching		-Sedimentation in creeks
		-Production				-Creation of monoculture
		-Transportation				
		-HVAC				

2. Hand Washing		-Energy for heated hand dryers	Hygienic	-Synthetic additives	-Reusable towels	-Use of paper products to dry hands-depletion of natural resource
		-Use of heat to heat water-depletion of fossil fuels		-Use of soap, chemicals, waste produced in production and adding chemicals (surfactants, antibacterial agents to waste water)	-Turned water off when soaping hands to save water	-Water use-electronic sensors may waste water
		-Water treat-ment (fossil fuel use)		-Disinfect ion by-products in treated tap water	-Recycling materials from earth to make soap	-Leaving water running while lathering
		-Transpor-tation of products (soap, towels) to the facility		-Triclosan-mutations, dioxins	-Using heated hand driers	-Use of water-natural resource

		-Energy used to pump water -Paper towels once used, discarded		-Water treatment and discharge to receiving water body		-Water depletion
3. Natural/Open Spaces	-Improved landscaping -Sediment control -Replanting /Reharvesting	-Runoff of sediments -Steams and rivers -Increase of heavy metals in air and water	-Higher density construction -re-development of existing facilities	-Wasteful--wood, paper, plastic -Need homes /commercial spaces -Need highways /parking lots -New communi-ties -Economic necessity?	-Buffers/green space -Compostin g -Use debris for habitat -More reuse of water -Controlled harvesting	-Over harvesting -Habitat loss -Species loss -More waste water -Burning-air pollution, contamination -CO2 loading -Potable water, resource depletion

4.Refreshments	-Breakfast offered	-Styrofoam	-No plates	-Pesticides use	-Organic ingredients	-Agricultural erosion
	-Recycling	-Food delivery	-Recycled, reusing mugs	-Styrofoam use	-Ran out of coffee	-Bottled water
	-Not needing additional food left out	-Lights on	-Not wasting food (leaving food out)	-Preservatives	-Leaving food out (not wasting)	-Agricultural water use
	-Ice for refrigeration	-Driving to Durham to recycle		-Bleaching process (napkins)	-No plates	-Tree harvesting (napkins)
	-Insulated container (coffee container not electric)	-Harvesting procedures (tractors, etc)		-Water treatment (drinking and waste)		-Coffee production
	-Reusing mugs			-Soda ingredients (synthetic compounds)		-Sugar harvesting
5. Driving	-Didn't drive an SUV	-Fossil fuels used		-Synthetics		-Need for roads, parking, storm water run-off
	-Car pool	-Air Pollution times 4		Rubber, plastic, fabrics, paints		-Damage to forests from increased air pollution

	-Would drive an AFV if they were available	-Did not car pool				-Cut forests to make roads, decrease animal habitat -Destruction of wet lands ands water quality due to increased construction -Soil erosion from road construction
6.Toilets	Minimal energy use, disposal, gravity and water pressure	-Metal fixtures -Energy use fore kiln firing -Waste water energy use -Electricity to get water to the toilets	Reuse of nutrients	Medication pass through	-New technologies -Water conservation, dry toilets -Waste treatments	-Water use -Extraction of clay -Contamination of fresh water bodies

7. Cotton Production	Not extracted from Earth's crust	Still utilizes fuel to harvest for planting and production	-GMO not using pesticides -Natural Dyes	-Genetic modified product? -Pesticides used for production? -Dyes, limited # of pesticides	-Minimizes soil erosion, strip till, minimal till -Biodegradable -Product life cycle -One half bale to one and three fourths bale per acre -Improved utilization of land and resources -More efficient use of natural resources	-Land taken out of natural state -Soil erosion
8. Workbook Binder	Need to select up-front recyclable materials	Binder--synthetics, plastics, petroleum fuels, metals, chrome covering		PVC, Chlorine, Dioxins	-Can be reused many times	-Plastic cover difficult to separate materials

	-Reusable, durable- recycled content?				-Use of resources selective, can have leveraged benefits	-Not innovative in re-distribution -Reverting efficient technology (electronic) to resource intensive (most of data copied from web and other files), could lead to careless waste, consumption of water -Copying, technology direct impacts

9. Chair	-Wood can be renewable- low embodied energy. Support natural environment.	-Metals from beneath crust used as parts of chain	Natural source of fiber	-Non-biodegradable materials	-Durable fore long term use as compared to wood resulting in less deforestation	-Potentially harmful manufacturing process (fuel, water)
	-Renewable material- sustainable forest	-oil from beneath crust used in plastics		-Ma-Plastics and synthetic compounds	-Wood might be renewable, salvaged material.	-Lots of water used to make fabric, foam, and plastic
	-Located in concentrated area fore intense use	-Need energy to process utilizing fossil fuels and other chemical processes		-Energy in manufacturing used materials from beneath earth's crust		-Wood not always well managed.
	-Steel could be recycled (takes less energy)			-Plastics from fossil fuels		-Affects all of system three.
	-Plastic could be made from plants			-Steel fabrication uses fossil fuels		

	-Made from recycled materials -Some materials may be recycled in other products -Avoids consumption of natural woods, forests, etc. -Durability (avoids repeat consumption)			-Steel extracted from the Earth n made toxics used in plastics		
10. Composting at a community level	Reduce dependency on man-made fertilizers	Fuel for transport	Reduce landfill requirements	-Missing social equation -Odor	-Use of less water for plants -Reduce soil erosion	-Deforestation from land requirements

11. Cell Phone	-Heavy Metals Renewable with recycling	-Fossil	- Plastics are renewable with recycling. Generation of employment of both manufacturers and recyclers	-Polymers are synthetics and don't biodegrade	-Decrease in landscape disruption in system deployment- Less use of land than conventional	-Cell towers
	- Coordinate with others- reduce travel	-fuels in manufacture of plastics		-Plastics	-Harvesting of metals creates employment	-Impact of cell towers on birds
		-use of scarce heavy metals in manufacture				-Disposal of old technology
		-NICAD battery—heavy metals				
12. Clothing	Cleansing through manufacture of biodegradable clothing	-Petro-chemical use	Less cleaning (organic cotton, natural dyes, natural cleaning)	-Pesticides, chemicals, dyes, dry cleaning chemicals	-Reuse of clothing	-Cotton
		-dyes (toxic)		-Air quality	-Use of waste stream	-Pesticides

		-manufacturing		-Water/air	-Cotton batting insulation	-Soil erosion/depletion -Fertilizers -Leather/animals -Waste generated
13. Electricity	-Hydroelectric Sources	-Use of coal to generate as primary fuel	-Quality of Life	-Combustion waste products	-Increased Efficiency decreases physical disruption	-Mining
	-Renewable Sources	-Limited supply of fossil fuels	-Education	-Nox	-Renewable Resources (Hydroelectric, wind turbines, solar)	(Roads, land)
	-Increases productivity	-Increase availability and ease of amount used and consumed	-Health	-Mercury		-Waste products of combustion
	-Telecommuting v. Transportation		-Safety	-SO2		-Safety of power lands

	-Can reduce use of other natural resources		-Efficiency -Economic Development	-Coal dust		-Economic Development leading to growth exceeding sustainability
14. Driving	Economic Development	-Depleted Organic Minerals -Fossil Fuel Reduction	-Quality of Life -Time utilization	-Carcinogen Production -Economic Impact -Ozone Destruction -Smokestack, smog, air pollution		-Acid Rain -Pollution of Water Supply -Physical Road Kill -Road Hazards